TETRA TECH

complex world | CLEAR SOLUTIONS™

About EM&V

Iowa 111(d) Stakeholder Meeting

February 22, 2016

Sue Hanson, Tetra Tech

TETRA TECH

complex world | CLEAR SOLUTIONS™

Evaluation Overview

Evaluation Overview

- Why evaluation is important
- View evaluation as a continuous communication tool
- Discuss current evaluation practices in Iowa
- Understand how evaluation fits into the program planning and design process

What is Evaluation?

Definition

Evaluation is a systematic process for an organization to obtain information on its activities, its impacts, and the effectiveness of its work, so that it can improve its activities and describe its accomplishments.*

Benefits

An effective evaluation will help you lean about your successes [and shortcomings], share information with key audiences, and improve your services*

* Source: The Manager's Guide to Evaluation, Mettessich

EM&V

- EM&V = Evaluation, Measurement and Verification
  - Evaluation is at the program level
  - Measurement is at the project level
  - Verification is at the project level
  - Both M and V are often components of E!

Why Evaluate?

- Better and more cost-effective programs!
  - Ensure that the program is delivering the benefits that it was designed to produce
  - Optimize energy and non-energy benefits
  - Provide valuable information about program operations

Evaluation is more important than ever!

- The stakes are higher today with more reliance on the “energy efficiency power plant”
- The penalties may be greater for non-performance
- Increased need for accountability that public benefits funds or rate payers monies are being spent wisely
- Increased need in jurisdictions with rising goals, disappearing low hanging fruit, and rising baselines

What Is Generally Measured

- Energy savings
- Demand savings
- Environmental impacts
- Economic impacts
- Customer satisfaction
- Technology penetration
- Other program specific research issues

Types of Evaluation

- Impact
- Process
- Market

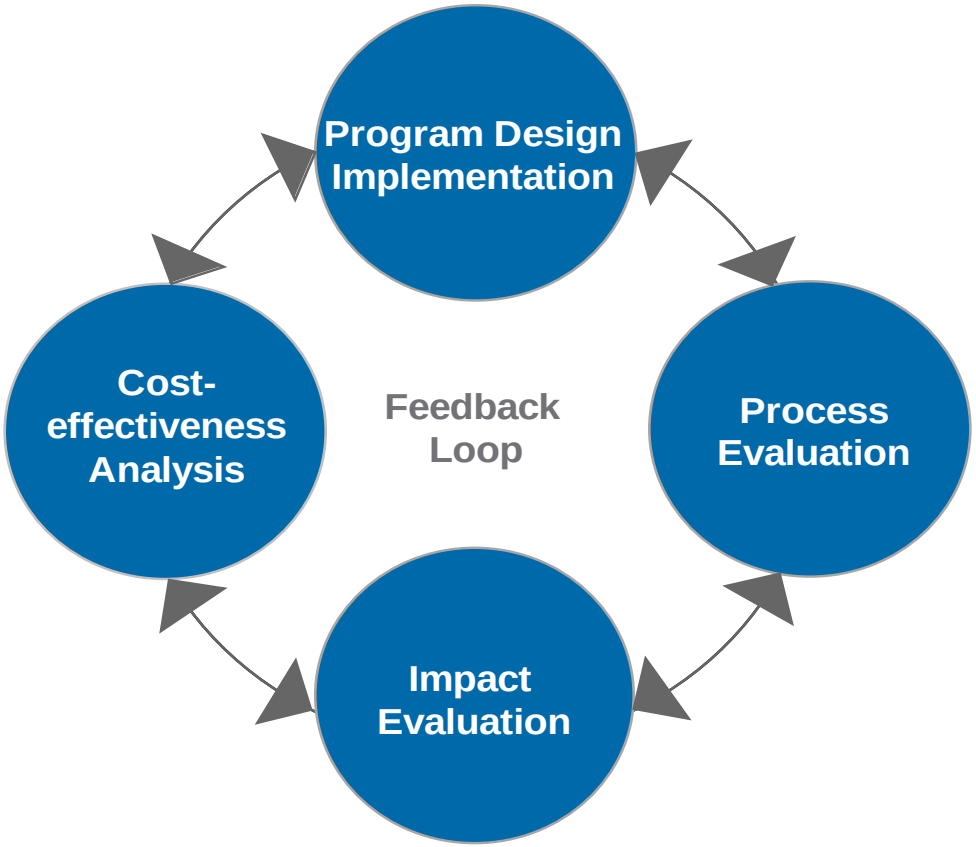
Process + Impact + Market Assessment = well rounded evaluation

TETRA TECH

complex world | CLEAR SOLUTIONS™

Evaluation in Iowa

The Evaluation Feedback Loop



Stakeholder Engagement

TETRA TECH

complex world | CLEAR SOLUTIONS™

Impact Evaluation

Impact Evaluation Challenge

Impact evaluation attempts to measure

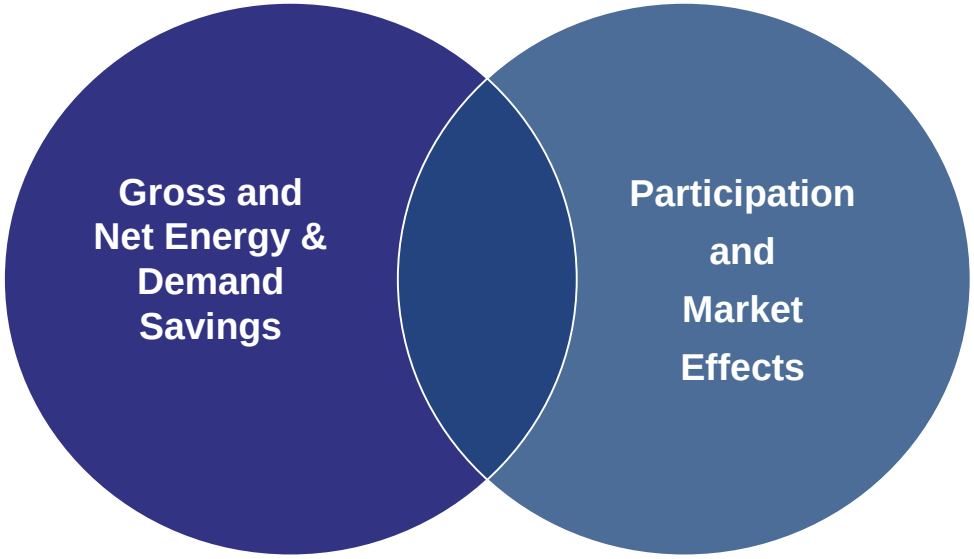
what did not happen

Savings: The difference between energy use after the program and what the energy use would have been without the program

Impact = Actual post – Actual pre ± Adjustment

Not an easy question to answer; we need a baseline…

What Do We Measure in Iowa



Forms of Impact Evaluation

- Establishment or verification of savings estimates
  - Engineering review
  - Billing analysis
  - Metering
  - Load shape analysis
  - Building simulation modeling
- Verification of savings
- Assessment of savings directly resulting from program funding (net-to-gross)
  - But not currently in Iowa

Why Savings May be Adjusted

- Use of equipment
- Discrepancies between tracking systems and actual installations
- Incorrect installation or setting of controls
- Location of equipment
- Hours of use
- Installation/removal rate

Overview of Iowa Impact Activities

Activity	Benefit
Review existing documentation	Confirm assumptions and calculations Prepare for additional data collection
Conduct on-site data collection	Verify installation, counts, and current conditions Adjust energy savings and kW impact estimates
Monitor end-use equipment	Provide critical information on hours of use, load factors, and other
Provide final "best" estimates of savings	Verify gross energy and demand savings
Conduct building energy simulation and billing analysis	Provide the best results in a pre/post design with a comparison group
Coordinate with other evaluation activities	Provide on-site/ metering sample and approvals for site visits Match findings from participant surveys (installation rates, free ridership, spillover) to observed results

Impact Evaluation and the TRM

- TRMs are developed for a variety of reasons and are used in different ways
  - CA - primarily used to inform program design
  - In the NW - establish saving values that form the basis for verifying saving targets
  - MI and PA - the TRM specifies the basis for determining ex ante savings claimed by utilities; for some measures, the PA TRM specifies fully-deemed savings
  - TX – used prospectively for program planning and reporting claimed savings
- More to come today about Iowa's TRM

TETRA TECH

complex world | CLEAR SOLUTIONS™

Process Evaluation

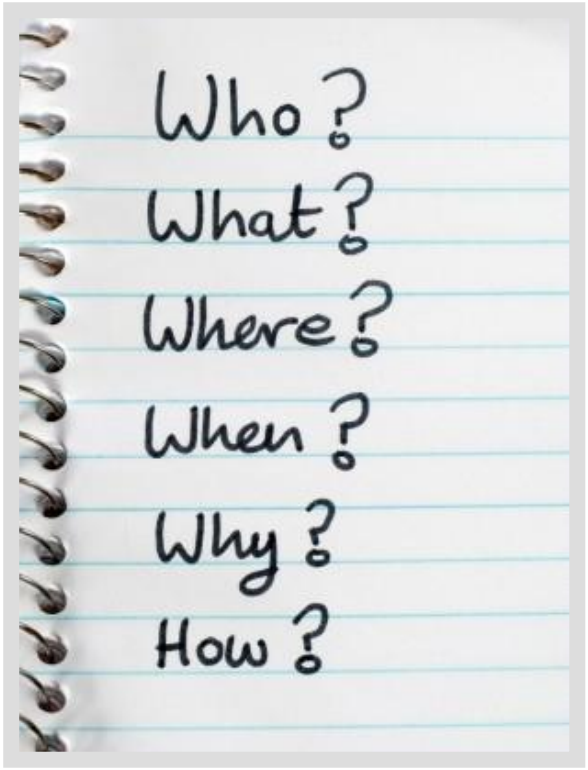
What is Assessed

- Program design and processes
- Program administrative activities
- Program delivery and implementation activities
- Customer response
- Internal and external program barriers
- Market response

Importance of Researchable Issues

Researchable questions serve as the foundation of a process evaluation

- Start with the question: What do we want to know about the program?
- Typically developed around program goals and metrics
- Can focus on issues both within and outside the program



Overview of Iowa Process Activities

Activity	Benefit
Identify and interview key program players and market actors	Ensure program feedback from all perspectives Sends a message that program is important
Develop process-related researchable issues	Focuses and prioritizes data collection activities Ensures that research needs are met
Collect data from key market actors and program participants	Provides feedback on program progress towards meeting specified goals and objectives Assesses program operations, delivery mechanisms, marketing, and market effects
Conduct program tracking system review	Ensures necessary data is tracked for evaluation purposes
Conduct benchmarking research with interview of program managers of similar programs	Compares program performance with other similar programs Identifies best practices

TETRA TECH

complex world | CLEAR SOLUTIONS™

Evaluation and the CPP

EM&V and CPP

- Iowa's current EM&V activities position Iowa well for CPP EM&V compliance
- Rate-based approach
  - Detailed guidance is provided for most types of EE
  - States can develop their own approaches
- Mass-based approach
  - EPA doesn't require a showing of EM&V because compliance is measured via tons emitted at the plant
  - Very little guidance for states
- And let's not forget EM&V for rate-payer funded programs

Questions?